

In the first Office Action, in the paragraph bridging pages 2 and 3, the Examiner equates "the claimed operation time integrator means for integrating operating times of an engine mounted on the vehicle" with the McDonald et al. disclosure of "the calculation of oil life is updated over a predetermined interval which may be measured either in terms of time or of elapsed engine revolutions, during each engine operation, a counter accumulates the number of engine over a predetermined interval (in terms of time or engine revolutions), (col. 4, lines 42-49 and col. 5, lines 39-46)." As argued by Applicant in the response to the first Office Action, the assessments performed during these "predetermined" intervals, whether measured in terms of time or of engine revolutions, do not yield data reflecting the time that the engine has been operation. These intervals are simply the time periods during which assessment of engine revolutions, engine oil temperature and engine oil contamination content are periodically performed. In the Final Rejection, the Examiner responded, "McDonald clearly shows in box 210 of Fig. 2 that engine operation is sensed for a predetermined interval of time, which operation is particularly referred to at col. 5, lines 39-45."

Independent claim 1 recites an apparatus comprising a combination of means for performing specified functions. Among the recited means is "operation time integrator means for integrating operation times of an engine mounted on the vehicle."

In the McDonald et al. system, calculations of remaining useful oil life are periodically performed over predetermined intervals. As disclosed by McDonald et al., the magnitude of the predetermined intervals can be measured in terms of time or a number of engine revolutions. See column 2, lines 13-15. However, even if the predetermined intervals are measured in terms of time, the data collected (engine oil temperature, oil contamination and accumulated engine revolutions) and the calculated value of remaining useful oil life cannot be fairly equated with integrated "operation times of an engine" or with "an integrated value of operation times, based on signals from ... said operation time integrator means," as clearly recited in Applicant's claim 1.

On page 2 of the Final Rejection the Examiner states, "Applicant seems to be implying that his system senses the total time that the engine has been in operation (page 4). However, no such limitation is included in independent claims 1 or 10 referring to a total engine time since start of vehicle operation, and thus McDonald satisfies the requirement for sensed integrated engine operation time over a predetermined period."

Applicant submits that "integrating" followed by "operating times" in claim 1 signifies that an accumulated value from more than one operating time is determined. This interpretation is consistent with the disclosure in this application and with the plain and accepted meaning of "integrating."

The system disclosed in the McDonald et al. patent does not perform the function of "integrating operating times" and does not incorporate a "controlling means" that uses "an integrated value of the operation times" as a factor for starting the "oil exchange informing means," as required by claim 1.

Independent claim 10 recites an apparatus comprising a combination of elements including "an operational timer determining the time of operation of an engine of a vehicle and for generating a time of operation signal" and "a controller for comparing at least one of a travel distance and a time of operation based on signals from said odometer and said time of operation as compared to a preset value for the travel distance and the time of operation, and for providing a signal to the oil exchange indicator inform the user of the exchange timing of oil."

From the discussion above, it should be clear that the McDonald et al. system does not include any elements that can fairly meet the requirements for "an operational timer" and "a controller" as recited in claim 10. More particularly, there is no "operational timer" in the McDonald et al. system that generates a "time of operation signal," and there is no "controller" in the McDonald et al. system that uses "time of operation" as a factor for "providing a signal to the oil exchange indicator."

The Examiner relies upon Raffa et al. for a disclosure of using data from an odometer as a determinant of when oil in the vehicle should be changed.

Obviously, the disclosure in Raffa et al. cannot remedy the deficiency of McDonald et al. vis-à-vis the requirements of independent claims 1 and 10 in this application, as observed in the discussion above. Accordingly, the proposed combination of McDonald et al. and Raffa et al. cannot properly serve as a basis for rejecting independent claims 1 or 10 or any of dependent claims 2-9 and 11-18 under 35 USC 103.

In view of the foregoing discussion, Applicant trusts that the Examiner will now recognize claims 1 and 10 as allowable.

The allowability of claims 1 and 10 obviously inheres in dependent claims 2-9 and 11-18. These claims are, moreover, allowable by virtue of additional patentable limitations that they recite. The prior art of record does not, for example, fairly disclose a "controlling means" or a "controller" that performs rewriting of preset integrated values, as required in claims 2 and 11. From the discussion above, it is apparent that the cited prior art does not disclose a microcomputer for storing information relating to "operation time," or "time of operation," as specified in claims 5 and 14. Nor does the prior art of record fairly disclose a system or apparatus that uses a correlation between "operation time," or "time of operation," and "degree of degradation of oil" as a factor for determining when to alert the user to change oil, as specified in claims 7, 9, 16 and 18.

In view of the discussion presented herein, Applicant respectfully asks the Examiner to withdraw the rejection stated in the last Office Action and recognize claims 1-18, all of the claims pending in this application, as allowable.

Conclusion

The Examiner is invited to contact Frederick R. Handren, Reg. No. 32,874, at (703) 205-8066 in the Washington, DC area if a discussion with Applicant's representative would facilitate the resolution of any issues remaining in this application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge any payment or credit any overpayment to Deposit Account No. 02-2448. This authorization applies to any additional fees required under 37 CFR §1.16 and 37 CFR §1.17 and in particular to fees for an extension of time.

Respectfully submitted,

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